

## Commodity Highlight: Walnuts

### *Walnuts: Second Biggest Nut Crop Produced in the United States*

Walnut growers in the United States produced 325,000 tons of nuts in 2004, second in size only to almonds among all nut crops produced domestically (almonds, hazelnuts, macadamia nuts, pecans, pistachios, and walnuts). The crop was valued at \$439 million, the sixth highest valued fruit and tree nut crop for the year.

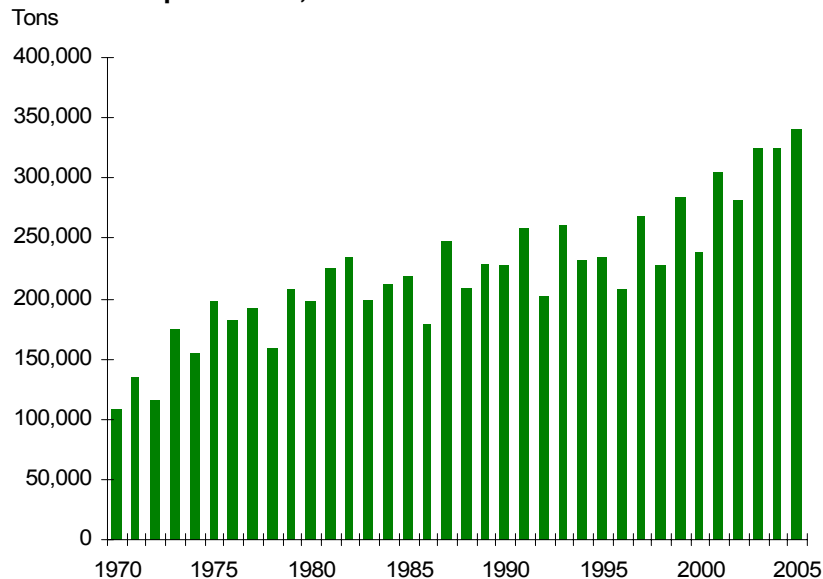
The size of the walnut crop has been trending steadily upward over the past 35 years, with production increasing the most rapidly in the 1970s when the industry was young and again over the past decade (fig. 5). Walnut trees produce nuts on an alternate-bearing cycle, meaning they produce a big crop one year followed by a smaller crop the following year as the trees replenish their nutrients. Generally, the cycles can bring big swings in crop size. In spite of the up and down cycle, the crop's size has been trending upward as more acreage has been brought into production, and yields have increased through improved production and management technologies (fig. 6).

### *The English Walnut is the Most Popular Variety*

Most of the commercial walnut crops in the United States are the English or Persian variety. The trees are said to have originated in the Middle East, eventually making their way to the United States through English settlers, whereby they got their name English walnuts.

Another species, the black walnut is indigenous to the Midwest and Northeastern United States and grows mostly in the wild. While there is some commercial production and processing of the nuts from the black walnut, the trees' greatest value is for their wood, which is used for making furniture and gunstock.

Figure 5  
**U.S. walnut production, 1970 to 2005**



Source: National Agricultural Statistics Service, USDA.

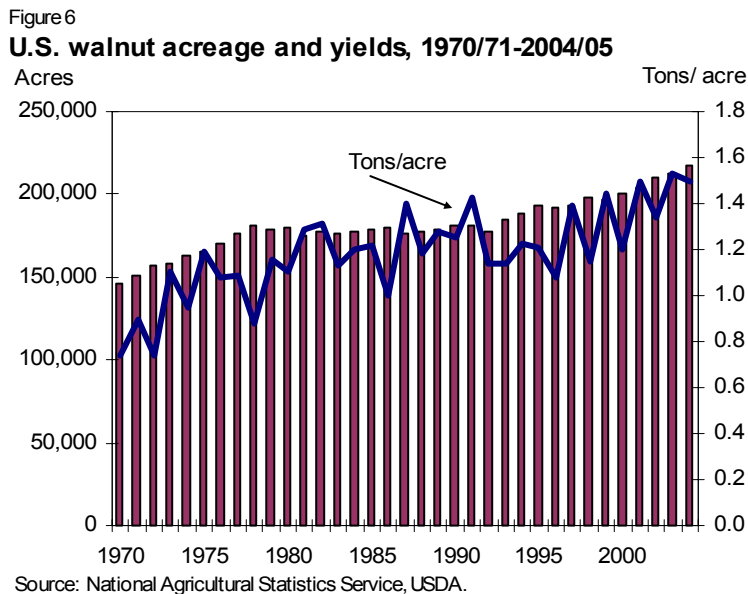
Black walnuts produce small kernels relative to the nuts' size, have hard, thick shells, and are difficult to hull. These traits reduce their commercial appeal. There is one major processor for black walnuts in the Midwest and most of the resulting products are sold locally. Other black walnut varieties grow in western and southwestern States. These species have less commercial value, although some may be used as rootstock for the English walnut trees.

### ***Walnut Production Concentrated in California***

The English walnut trees were said to have been introduced into California in the 1700s by Spanish missionaries. In the 1970s, production became concentrated in the San Joaquin and Sacramento Valleys, where today about 99 percent of the production occurs.

According to the 2002 Census of Agriculture, California accounts for 99 percent of English walnut bearing acres, but 90 percent of the farms. Oregon accounts for another 5 percent of the farms, and other States, such as Washington, Pennsylvania, Michigan, Utah, Iowa, and Maine account for the remainder. The bearing acreage on walnut farms was highest in California. While the number of bearing acres per farm in California averaged 46 acres, in other States, the average ranged from less than an acre per farm in most States to 14 acres per farm in Virginia.

In California, there were 6,293 farms producing walnuts in 2002. About 83 percent of these farms had between 1 and 100 acres of walnut trees; with 47 percent having between 1 and 15 acres. While less than 1 percent of the farms had 500 or more acres, this group accounted for 20 percent of the 242,603 bearing acreage in 2002. The Census reported there were 20 farms in California that had at least 1,000 acres of walnut trees. These farms accounted for 13 percent of the bearing acreage.



Most of the walnut orchards are family- or individual-held farms. In 2002, about 80 percent of the orchards came under this category. Only 6 percent of the farms were corporations and most of these were family-held corporations with 10 or fewer stockholders.

### ***Processors Market Walnuts for Growers***

Once the walnuts have been harvested, dried, and hulled on the farms, they are shipped to processors (also called handlers) who store, process, package, and market the nuts. The California Walnut Commission listed 52 handlers who receive and process the nuts. Diamond Foods is one of the biggest processors, receiving a large share of California's crop. Until 2005, Diamond was a cooperative of walnut growers but has since gone public.

Walnuts sold in the domestic market must meet standards set under two separate federal marketing orders, one for shelled nuts and the other for inshell nuts. The marketing orders are administered by the Walnut Marketing Board.

Once the walnuts arrive at the processors they are stored until needed. There, they are either shelled to be sold as kernels or sold inshell. About 90 percent of California's walnuts are sold shelled. The nuts are then packaged according to the buyers' requirements. Packaging includes bulk containers or cartons shipped to the food industry and retail packaging in clear bags.

About 40 percent of the annual walnut harvest is consumed domestically, either for use as ingredients in other products, such as candies, cereals, and baked goods, or directly as a snack item. Another 35 percent of the crop is exported. The remainder of the crop, about 25 percent, is put into storage.

### ***Grower Prices Trending Upward***

Prices received by walnut growers fluctuate annually in response to the size of the crop and total supply for the year. Throughout the 1970s and through the 1990s, annual price fluctuation could be very steep (fig. 7). Beginning in 2000, however, the rise and fall in prices have become much more moderate, and prices rose in 2004 despite supplies being the highest on record. Strong demand, domestically and internationally, since 2000 has helped growers achieve higher prices and reduce the strong correlation between the size of a crop for a given year and the price growers can expect to receive. With growing demand for walnuts, especially in the domestic market, prices should continue to trend upward in the coming years, and growers will likely see strong returns from their crop, regardless of its size.

### ***United States Leads World Walnut Exports but Not Production***

Although the United States is not the world's biggest producer of walnuts, it is the leading exporter (fig. 8). Since 2000, the United States accounts for about 35 to 40 percent of the world's walnut exports (fig. 9), followed by Mexico, Moldova, China, and France, based on data from the United Nations' Food and Agriculture Organization. The data are slightly deceptive, however, because some countries, such as Moldova, are mostly re-exporting shelled nuts, most of which they received as inshell imports from the European Union countries.

Figure 7

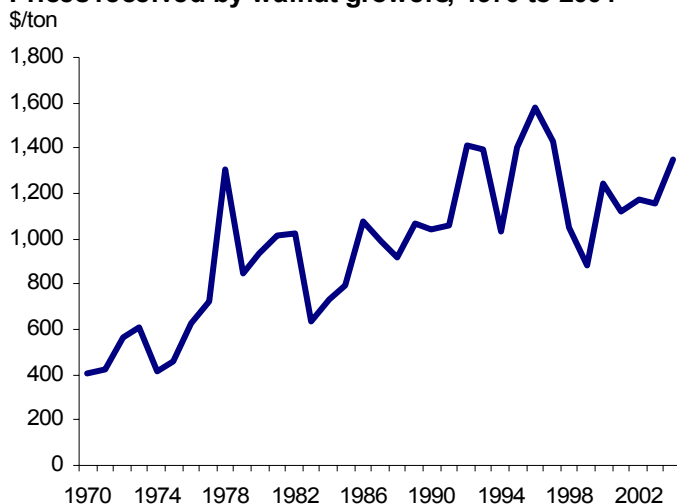
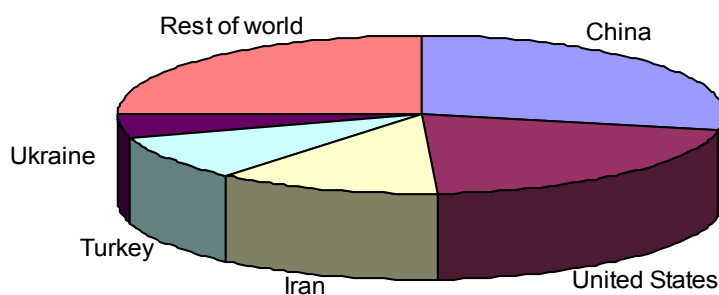
**Prices received by walnut growers, 1970 to 2004**

Figure 8

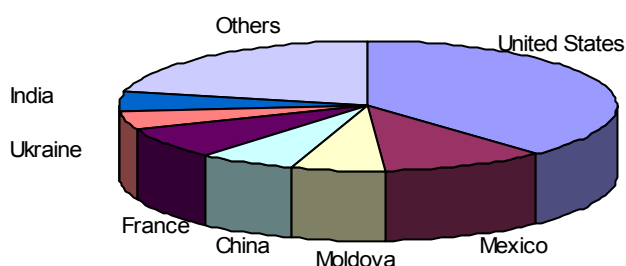
**Share of world walnut production by major producers, 2001-2004 average.**

China leads the world in terms of quantity of walnuts produced. It exports only a fraction of its crop, leaving most of its production for domestic consumption. At present, only a limited portion of China's walnuts would meet the quality demands of the international market. With continued planting and improvements in planting and management techniques, however, increased quantities will likely be available for the export market in the future. At present, China is the fourth biggest walnut exporter, however, it exports amount to only about 15 percent of the quantity of U.S. walnuts in the world market.

The United States is the world's second biggest walnut producer, followed by Iran, Turkey, the Ukraine, and India. Iran and Turkey consume most of what they produce, or ship to neighboring countries. The Ukraine is a newcomer to the world export market. Between 2003 and 2004, FAO data showed a doubling in harvested walnut acres, indicating they may be expanding beyond their domestic market to gain revenues from the higher valued export market.

Figure 9

**World's major walnut exports, top countries, 2000-03 average.**



Source: Food and Agriculture Organization, United Nations.

France is the next biggest walnut exporter and ranks eighth in terms of production. In the past few years, however, its crop size has declined due to drought conditions. France is also a major consumer of walnuts, and while its top markets are Germany and Spain, a sizable portion of its crop is shipped to Moldova where the nuts are shelled and re-exported back to France.

***Germany and Spain are Top World Walnut Importers***

Germany and Spain import more walnuts than any other country in the world (fig. 10). Both countries are major consumers of nuts, and even though both are big walnut producers, they need to import to meet their domestic needs.

Walnut product destination varies based on whether the nuts are shelled or still inshell. While Germany and Spain are among the top importers of both shelled and inshell walnuts, certain countries, such as Japan, have a much stronger demand for one product over the other. While Japan produces a small quantity of a native variety of walnut, it relies on imports for its food industries. Japan imports shelled walnuts to a much greater extent than inshell nuts. For Japan, a high-income country, purchasing the more expensive shelled nuts is more economical than having to provide the machinery and labor to shell the nuts themselves. In Germany and Spain, the shelling machinery already exists since both countries produce large quantities of walnuts, reducing the economic advantage of shelled over inshell. Also, in both countries, demand is strong from both the food processing industries and from consumers for snack purposes.

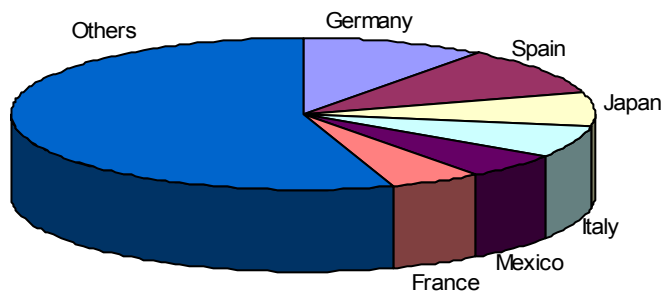
Other major importers of inshell walnuts include Italy, Mexico, the Netherlands, Turkey, and Russia. Major importers of shelled walnuts after Japan include Germany, Turkey, France, Canada, Greece, and Spain.

***U.S. Walnut Export Shipments Continue To Grow***

U.S. walnut exports totaled 143.1 million pounds (shelled basis) in 2004/05, more than any other year over the past decade. Exports have grown at an average rate of 2 percent annually since the mid-nineties. Shipments of shelled walnuts grew more

Figure 10

**World's major walnut importers, top countries, 2001-03 average**



Source: Food and Agriculture Organization, United Nations.

rapidly during this period than inshell nuts, increasing at an average of 8 percent annually. Exports have grown at a more rapid pace over the past 5 years. Shipments increased at a rate averaging 11 percent annually for shelled walnuts and 7 percent annually for inshell nuts.

The average unit value of shelled walnut exports is about double the value of inshell walnuts. Since 2000, the unit value of exported shelled walnuts averaged \$1.80 per kilogram while shelled walnuts averaged \$3.79 per kilogram.

Since 2000, Spain, Italy, Germany, and the Netherlands continue to remain the top markets for inshell walnuts, as they have over the past 10 years. Over the past 5 years, the shipments to Italy, Germany, and the Netherlands have been stronger than the first half of the decade. Italy and the Netherlands rely heavily on the U.S. walnut crop as their major source of imports. Germany gets most of its imports from the United States, but also gets shipments from the Netherlands that originate in the United States.

Developing economy countries have been rapidly growing markets in recent years. Exports to Brazil and Venezuela have been expanding in recent years, placing them among the top 15 markets. Shipments have also been increasing rapidly in the past 5 years to Australia and Scandinavia.

Japan remains the number one export market for U.S. shelled walnuts, however, its share of shipments has declined in recent years from a high of about 40 percent in 1995-1997 to an average of 25 percent since 2000. The other top markets are Canada, Germany, and Spain. Growth markets in the past 5 years include South Korea, Australia, Norway, and Sweden. As traditional markets mature and the U.S. walnut crop continues to increase, new markets are becoming increasingly important to the industry.

## U.S. Walnut Consumption Grows in the 2000s

U.S. walnut consumption reached a record high in 2004/05 at 0.54 pound per person (table 9). After averaging about a half pound per person during the mid-1980s, consumption dropped to about a third of a pound per person in the mid-1990s, and then has returned to slightly under a half pound in the 2000s. Between 2002/03 and 2004/05, walnut consumption grew at a rapid pace of 9 percent annually. Bigger crops and increased information about the health benefits have helped increase consumer demand for walnuts.

In 2004/05, the big story driving walnut consumption to a record high was the introduction of the fruit and walnut salad by McDonalds. As a major purchaser in any category product that it enters, McDonalds alone can have a major impact on consumer demand. The demand, however, can go beyond the increase in purchases from the company alone, by reintroducing the walnut as a product to consume in ways beyond an ingredient in baked goods and candy.

At the same time that McDonalds introduced its new salad, new studies, conducted under the auspices of the California Walnut Marketing Board, has reported several health claims associated with the walnut. Containing high levels of omega 3 fatty acids, vitamin E, and other antioxidants, has resulted in the walnut being the first whole food to receive the Food and Drug Administration's approval to make the claim that there was scientific evidence that walnut consumption was good for a healthy heart. This and other studies that are showing substances in walnuts can have effects on reducing different cancer cell growth are likely to drive up demand for walnuts not only in the United States but from around the world.

Table 9--Walnuts: Supply and utilization (shelled basis), 1985/86 to date

Season 1/	Utilized production	Loss and exempt 2/	Marketable production	Import	Beginning stocks	Total supply	Ending stocks	Exports	Total	Per capita
					--1,000 pounds--					Pounds
1985/86	167,646	766	166,881	128	42,275	209,283	52,169	41,742	115,373	0.48
1986/87	141,687	787	140,899	2,655	52,169	195,723	28,343	49,300	118,080	0.49
1987/88	204,108	826	203,281	470	28,343	232,094	59,931	59,029	113,134	0.46
1988/89	173,171	829	172,343	184	59,931	232,458	48,279	60,845	123,334	0.50
1989/90	196,546	858	195,687	142	48,279	244,109	54,197	77,898	112,014	0.45
1990/91	181,600	800	180,800	95	54,197	235,092	48,736	72,507	113,848	0.45
1991/92	211,251	816	210,436	82	48,736	259,254	55,689	88,244	115,322	0.45
1992/93	168,940	832	168,107	8,046	55,689	231,842	37,201	75,038	119,603	0.46
1993/94	216,884	834	216,050	1,191	37,201	254,442	72,992	83,311	98,139	0.38
1994/95	200,795	865	199,930	704	72,992	273,626	56,940	99,624	117,062	0.44
1995/96	197,786	845	196,940	2,308	56,940	256,188	55,269	98,275	102,644	0.38
1996/97	170,444	819	169,625	5,815	55,269	230,709	40,346	102,724	87,639	0.32
1997/98	221,365	823	220,542	284	40,346	261,172	67,609	94,125	99,437	0.36
1998/99	187,862	828	187,034	156	67,609	254,800	59,448	90,920	104,431	0.38
1999/00	237,884	841	237,043	181	59,448	296,673	63,393	91,279	142,002	0.51
2000/01	204,857	857	204,000	1,155	63,393	268,548	46,218	97,083	125,247	0.44
2001/02	257,556	844	256,711	201	46,218	303,130	80,004	103,420	119,706	0.42
2002/03	243,963	865	243,098	192	80,004	323,294	73,419	113,966	135,909	0.47
2003/04	279,429	857	278,571	310	73,419	352,301	82,145	124,904	145,251	0.50
2004/05 3/	282,360	869	281,491	471	82,145	364,108	67,278	136,090	160,740	0.54

1/ Season beginning August 1. 2/ Inedibles and noncommercial usage. 3/ Preliminary estimate.

Sources: National Agricultural Statistics Service and Economic Research Service, U.S. Dept. of Agriculture; California Walnut Commission.

For the most recent information, see:

<http://www.ers.usda.gov/publications/fts>